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Total Number of Pages in This Submission

Application Number

10/776,059

Filing Date

02/11/2004

First Named Inventor

Jaiprakash, et al.

Art Unit

2186

Examiner Name

TBA

Attorney Docket Number

112020.143US2 NAN-19

ENCLOSURES (Check all that apply)

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<input type="checkbox"/> Reply to Missing Parts/ Incomplete Application	<input type="checkbox"/> Remarks	
<input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	1. PTO Form 1449 (4 pgs.)	
	2. 28 Publications	

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Wilmer Cutler Pickering Hale and Dorr LLP		
Signature			
Printed name	Peter M. Dichiaro		
Date	1/3/05	Reg. No.	38,005

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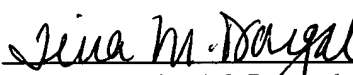
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Jaiprakash et al.
Application No.: 10/776,059 Examiner: Unknown
Filed: February 11, 2004 Group Art Unit: 2186
For: Devices Having Horizontally-Disposed Nanofabric Articles and Methods of Making the Same
Atty. Docket No.: 112020.143 US2 (NAN-19)

CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

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Alexandria, Virginia 22313-1450

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Sir:

Applicants and their legal representatives hereby make of record on the attached Form PTO-1449 the following publications which are known to them and considered warranting disclosure under 37 C.F.R. §1.56 and 1.97-98.

Copies of the publications listed on the attached Form PTO-1449, with the exception of the cited U.S. Patents and the U.S. published applications, are submitted herewith. It is respectfully requested that the Examiner initial and return a copy of the subject Form PTO-1449 with the next Patent Office communication.

The submission of these publications does not constitute a representation by the Applicants that a search has been made or that no better art exists and does not constitute an admission that the listed publications are material or constitute "prior art." Applicants reserve the right to take appropriate action to establish the patentability of the disclosed invention over the listed publications, should one or more of the publications be applied against the claims of the present application.

It is Applicants' belief that the Information Disclosure Statement is being filed prior to the mailing date of the first Office Action on the merits and, therefore, no fee is due. However, in the event a fee is due, please charge any fee deficiency or credit any overpayment to Deposit Account No. 08-0219.

Respectfully submitted,

Dated: January 3, 2005



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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Use as many sheets as necessary)**Complete if Known**

Application Number	10/776,059
Filing Date	02-11-2004
First Named Inventor	Jaiprakash et al.
Art Unit	2186
Examiner Name	TBA
Attorney Docket Number	112020.143US2 NAN-19

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U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ^{2(If known)}			
		US-6,574,130	09-04-2003	SEGAL et al.	
		US-6,643,165	11-04-2003	SEGAL et al.	
		US-6,706,402	03-16-2004	RUECKES et al.	
		US-6,784,028	08-31-2004	RUECKES et al.	
		US-6,759,693	07-06-2004	VOGELI et al.	
		US-6,774,052	08-10-2004	VOGELI et al.	
		US-2002/0130311 A1	09-19-2002	LIEBER et al.	
		US-2002/0130353 A1	09-19-2002	LIEBER et al.	
		US-2002/0172963 A1	11-21-2002	KELLEY et al.	
		US--2002/0179434 A1	12-05-2002	DAI et al.	
		US-2003/0021966	01-30-2003	SEGAL et al.	
		US-2003/0124325	07-30-2003	RUECKES et al.	
		US-2003/0165074A1	09-04-2003	SEGAL et al.	
		US-2003/0234407A1	12-25-2003	VOGELI et al.	
		US-2003/0236000A1	12-25-2003	VOGELI et al.	
		US-2004/0085805A1	05-06-2004	SEGAL et al.	
		US-2004/0159833A1	08-19-2003	RUECKES et al.	
		US-2004/0164289A1	08-26-2003	RUECKES et al.	
		US-2004/0191978A1	09-30-2004	RUECKES et al.	
		US-2004/0214366 A1	10-28-2004	SEGAL et al.	
		US-2004/0214367 A1	10-28-2004	SEGAL et al.	
		US-6,128,214	10-03-2000	KUEKES et al.	
		US-6,221,330 B1	04-24-2001	MOY et al.	
		US-6,445,006	09-03-2002	BRANDES et al.	
		US-6,673,424 B1	01-06-2004	LINDSAY	
		US-6,518,156 B1	02-11-2003	CHEN	
		US-6,781,166 B1	08-24-2004	LIEBER et al.	
		US-6,559,468 B1	05-06-2003	KUEKES et al.	

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STATEMENT BY APPLICANT**

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Application Number	10/776,059
Filing Date	02-11-2004
First Named Inventor	Jaiprakash et al.
Art Unit	2186
Examiner Name	TBA
Attorney Docket Number	112020.143US2 NAN-19

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US-6,750,471B2	06-15-2004	BETHUNE et al.
US-6,159,620	12-12-2000	HEATH et al.
US-6,198,655	03-06-2001	HEATH et al.
US-6,232,706	05-15-2001	DAI et al.
US-6,183,714	02-06-2000	SMALLEY et al.

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		WO 01/44796 A1	06-21-2001	Board of Trustees of the Leland Stanford Junior University	
		WO 01/03208 A1	01-11-2001	President and Fellows of Harvard	

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A1	CHOI, W.B. et al., "Carbon-nanotube-based nonvolatile memory with oxide-nitride-film and nanoscale channel," <i>Appl. Phys. Lett.</i> , 2003, Vol. 82(2), pp.275-277.	
	A2	DEQUESNES, M. et al., "Calculation of pull-in voltages for carbon-nanotube-based nanoelectromechanical switches," <i>Nanotechnology</i> , 2002, Vol. 13, pp. 120-131.	
	A3	DEQUESNES, M. et al., "Simulation of carbon nanotube-based nanoelectromechanical switches," <i>Computational Nanoscience and Nanotechnology</i> , 2002, pp. 383-386.	
	A4	WOLF, S., Silicon Processing for the VLSI Era; Volume 2 – Process Integration, Multi-Level-Interconnect Technology for VLSI and ULSI, 1990, Section 4.3 Materials for Multilevel Interconnect Technologies, pp. 189-191, Lattice Press, Sunset Beach	
	A5	WOLF, S., Silicon Processing for the VLSI Era; Volume 2 – Process Integration, 1990, Section 4.7 Manufacturing Yield and Reliability Issues of VLSI Interconnects, pp. 260-273, Lattice Press, Sunset Beach	

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Attorney Docket Number	112020.143US2 NAN-19

3 of 4

A6	ROBINSON, L.A.W., "Self-Aligned Electrodes for Suspended Carbon Nanotube Structures," <i>Microelectronic Engineering</i> , 2003, Vols. 67-68, pp. 615-622.
A7	CUI, J.B. et al., "Carbon Nanotube Memory Devices of High Charge Storage Stability," <i>Appl. Phys. Lett.</i> , 2002, Vol. 81(17), pp. 3260-3262.
A8	TOUR, J. M. et al., "NanoCell Electronic Memories," <i>J. Am. Chem Soc.</i> , 2003, Vol. 125, pp. 13279-13283.
A9	RUECKES, T., et al., "Carbon Nanotube-Based Nonvolatile Random Access Memory for Molecular Computing" <i>Science</i> , 2000, Vol. 289, pp. 94-97.
A10	FAN, S. et al., "Carbon nanotube arrays on silicon substrates and their possible application," <i>Physica E</i> , 2000, Vol. 8, pp. 179-183.
A11	ZHAN, W. et al., "Microelectrochemical Logic Circuits," <i>J. Am. Chem. Soc.</i> , 2003, Vol. 125, pp. 9934-9935.
A12	SOH, H. T. et al., "Integrated nanotube circuits: Controlled growth and ohmic contacting of single-walled carbon nanotubes," <i>Appl. Phys. Lett.</i> , 1999, Vol. 75(5), pp. 627-629.
A13	KINARET, J.M. et al., "A carbon-nanotube-based nanorelay," <i>Appl. Phys. Lett.</i> , 2003, Vol. 82(8), pp. 1287-1289.
A14	FRANKLIN, N. R. et al., "Integration of suspended carbon nanotube arrays into electronic devices and electromechanical systems," <i>Appl. Phys. Lett.</i> , 2002, Vol. 81(5), pp. 913-915.
A15	AVOURIS, Ph., "Carbon nanotube electronics," <i>Chem. Physics</i> , 2002, Vol. 281, pp. 429-445.
A16	DAI, H. et al., "Controlled Chemical Routes to Nanotube Architectures, Physics, and Devices," <i>J. Phys. Chem. B</i> , 1999, Vol. 103, pp. 111246-11255.
A17	HOMMA, Y. et al., "Growth of Suspended Carbon Nanotubes Networks on 100-nm-scale Silicon Pillars," <i>Appl. Phys. Lett.</i> , 2002, Vol. 81(12), pp. 2261-2263.
A18	AJAYAN, P.M., et al., "Nanometre-size tubes of carbon," <i>Rep. Prog. Phys.</i> , 1997, Vol. 60, pp. 1025-1062.
A19	SREEKUMAR, T.V., et al., "Single-wall Carbon Nanotube Films", <i>Chem. Mater.</i> 2003, Vol. 15, pp. 175-178.
A20	VERISSIMO-ALVES, M. et al., "Electromechanical effects in carbon nanotubes: <i>Ab initio</i> and analytical tight-binding calculations," <i>Phys. Rev. B</i> , 2003, Vol. 67, pp. 161401-1 - 161401-4.
A21	FUHRER, M.S. et al., "High-Mobility Nanotube Transistor Memory," <i>Nano Letters</i> , 2002, Vol. 2(7), pp. 755-759.

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4 of 4

A22	RADOSAVLJEVIC, M. et al., "Nonvolatile molecular memory elements based on ambipolar nanotube field effect transistors," <i>Nano Letters</i> , 2002, Vol. 2(7), pp. 761-764.
A23	FARAJIAN, A. A. et al., "Electronic transport through bent carbon nanotubes: Nanoelectromechanical sensors and switches," <i>Phys. Rev. B</i> , 2003, Vol. 67, pp. 205423-1 - 205423-6.
A24	FISCHER, J.E. et al., "Magnetically aligned single wall carbon nanotube films: Preferred orientation and anisotropic transport properties," <i>Journal of Appl. Phys.</i> , 2003, Vol. 93(4), pp. 2157-2163.
A25	LEE, K.-H. et al., "Control of growth orientation for carbon nanotubes," <i>Appl. Phys. Lett.</i> , 2003, Vol. 82(3), pp. 448-450.
A26	CASAVANT, M.J. et al., "Neat macroscopic membranes of aligned carbon nanotubes," <i>Journal of Appl. Phys.</i> , 2003, Vol. 93(4), pp. 2153-2156.

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